

REMARKS

In the June 7, 2003 Office Action the Examiner noted that claims 1, 2, 8-10, 16 and 17 were pending in the application and the Examiner rejected all claims. By this Amendment, claim 32 has been added. Thus, claims 1, 2, 8-10, 16, 17 and 32 are pending in the application. The Examiner's rejections are traversed below.

The Rejection

In item 7 on pages 3-7 of the Office Action the Examiner has rejected all claims as unpatentable over U.S. Patent 5,933,599 to Nolan in view of U.S. Patent 5,905,863 to Knowles et al. and further in view of the newly cited Medves document.

On page 3 of the Office Action the Examiner has acknowledged that Nolan fails to explicitly disclose "determining for each document in the set, which of the documents is referenced, and extracting keywords contained in a body of a document forming part of each group of documents based on a statistical analysis, by referring to document group information." However, the Examiner relies on Knowles as teaching this feature.

On page 4 of the Office Action the Examiner acknowledges that Nolan fails to explicitly disclose "extract keywords contained in the body of a document, and display keywords extracted from the document corresponding to the title... the title being displayed in title-displaying field and the keywords being displayed in a keyword displaying field." However, the Examiner takes the position that Medves discloses this feature.

In addition, the Examiner takes the following position:

It would have been obvious to a person of ordinary skill in the art at the time of the invention to have combined the teaching of Nolan, Knowles, and Medves, and display the title of a bulletin board message pane with the highlighted keywords of the quoted text found in a related message, because Medves teaches above seeing the context of the keywords, and quickly determining whether the document is on target. In other words, Medves teaches, the benefit of quickly retrieving those documents, in this case bulletin board messages, which are relevant to a user's search. (See page 4 of the Office Action.)

The Knowles Reference

Applicants have reviewed the portions of Knowles referenced by the Examiner (column 1, line 63 to column 2, line 67; column 3, lines 20-64; and column 4, lines 34-50). The Knowles et al. patent is directed to a way of recognizing and manipulating threads contained in electronic messages. The Background of the Invention section of the Knowles patent describes typical electronic mail information, for example, identifying a relationship between a parent message and a reply message. Reference is also made to bulletin board systems in which replying to an e-mail message inserts structural information into the reply. The Background also discusses grouping of messages based on several criteria such as subject line, author, or recipient.

In the Summary of the Invention section of the Knowles patent, it is indicated that statistical information retrieval techniques are used in conjunction with textual material obtained by filtering messages to achieve a significant level of accuracy of identifying when one message is a reply to another. Column 4, lines 24-50 describe using the subject line, quoted text and unquoted text to determine whether a message is related to another message.

The Medves Reference

The Medves reference presents a discussion of searching Lexis. The Examiner particularly references page 3, line 28 to page 4, line 10 of Medves. This portion of Medves describes examining search results by displaying each of the retrieved documents in a KWIC (keywords in context) format. In order to make a KWIC determination as to whether the document is on target, the KWIC format is a form of displaying each of the plurality of detected keywords together with twenty-five word portions before and after the keyword with respect to a document retrieved in response to a search keyword input by a user. This method is similar to the method use in search engines such as Google. By using the method described in Medves it becomes possible to view words lying before and after a keyword so as to guess what the document is about and to determine if the retrieved document is on target.

The Present Claimed Invention Patentably Distinguishes Over the Prior Art

Referring to the newly cited Medves reference, it is submitted that the KWIC display method is not suitable for documents that are written in a casual and spoken style language,

such as those found at bulletin boards services (BBS) sites, which constitute data sources of the type to which the present invention is directed to searching. Note, the reference in claim 1 to "at least one of a forum and a message board." While the KWIC method is useful for documents written in formal styles such as news reports and commentaries, and documents released on web sites, for example, related to government authorities, it is not useful for "a forum or a message board". In particular, documents released at bulletin board service sites (BBS) contain many words and/or ASCII-pictograms, which represent only noise for a process of predetermining appropriateness of their contents. Therefore, extracting and displaying such portions lying before and after a keyword, in most cases, proves to be useless for predetermining the appropriateness of the contents.

In contrast, in accordance with the present invention, there is provided a function for automatically extracting keywords, such as nouns, that are uniquely associated with the statement (corresponding to "a document" recited, for example, in claim 1) or with an entire thread (corresponding to "a group of cross-referenced documents" recited in claim 1) from the statement or the thread beforehand as if something that may be called a content summary of a document is generated. As a result, a user can grasp reliably the contents of the statement or the thread even if it is written in a poorly structured manner when it is released at a bulletin board service site. This benefit cannot be achieved by the KWIC method for displaying search results.

The present invention, in particular, is concerned with helping a user to understand the essence of an entire set of contents which, being those typically found in bulletin board service sites comprise statements which are in a spoken and casual style language and widely vary from each other in terms of the statement length. According to the present invention, words uniquely associated with each statement or each thread are extracted automatically to constitute keywords of a group for each of the statements or threads.

Referring, for example, to claim 1, it is submitted that none of the prior art teaches or suggests:

a document group keyword extraction device to extract keywords contained in a body of a document forming part of each group of documents based on a statistical analysis by referring to the document group information; and

a document group keyword display device to display a title of each

document in each group of documents together with the keywords extracted from the body of the document corresponding to the title by said document group keyword extraction device, the title being displayed in a title-displaying field and the keywords being displayed in a keyword-displaying field.

That is, none of the references teach the concept of extracting keywords contained in a body of a document and then displaying the keywords extracted from the body of the document in conjunction with a corresponding title, so that the title is displayed in a title-displaying field and the keywords are displayed in a keyword-displaying field. Figure 25 of the subject application illustrates an embodiment of the invention which clearly shows a title-displaying field and a keyword-displaying field. It is submitted that this clearly differs from the disclosures of the prior art.

Referring to a case in which a search engine, such as Google, has found its search result, a one-line simple statement is output such as "thank you for your advice on ____". A display using the KWIC method in correspondence with this statement would not provide a meaningful amount of information. This is because the search engine is designed to retrieve data in units of one statement (or one page). In contrast, according to the present invention, keywords relevant to an entire thread that house this statement are found from the entire thread for extraction and display as those indicating the contents of the entire thread. As a result, the user can determine the appropriateness of this thread from the display more accurately. It is also submitted that in contrast to the KWIC method, the present invention does not assume a user inputting search words. Instead, the apparatus according to the present invention is configured to extract and display automatically the keywords together with the title of the concerned document based on a statistical analysis. Thus, the present claimed invention will display extracted keywords and document titles retaining original correlations between them. Neither Medves nor any other cited prior art teaches or suggests a technical concept for displaying the title of a document and keywords extracted from the document in the form in which their original correspondence is retained.

In summary, it is submitted that none of the references teach or suggest the features of claim 1, which include:

a document group keyword extraction device to extract keywords

contained in a body of a document forming part of each group of documents based on a statistical analysis by referring to the document group information; and

a document group keyword display device to display a title of each document in each group of documents together with the keywords extracted from the body of the document corresponding to the title by said document group keyword extraction device, the title being displayed in a title-displaying field and the keywords being displayed in a keyword-displaying field.

Therefore, it is submitted that claim 1 patentably distinguishes over the prior art.

Claim 2 depends from claim 1 and includes all of the features of that claim plus additional features which distinguish over the prior art. Therefore, it is submitted that claim 2 patentably distinguishes over the prior art.

Claim 8 is directed to a display apparatus which includes:

a topic keyword extraction device to extract keywords contained in a body of each document relevant to each topic obtained by the further classification of each of the groups of documents based on a statistical analysis by referring to the document group information and the topic classification information;

a topic keyword display device to display a title of each document relevant to each topic obtained by the further classification together with the keywords extracted from the body of each document corresponding to each title by said topic keyword extraction device, the title being displayed in a title-displaying field and the keywords being displayed in a keyword-displaying field.

Therefore, it is submitted that claims 8 patentably distinguishes over the prior art.

Claim 9, is directed to a display method which includes:

extracting keywords contained in a body of a document forming part of each group of documents based on a statistical analysis by referring to the document group information;

displaying a title of each document in each group of documents together with the keywords extracted from the body of the document corresponding to the title, the title being displayed in a title-displaying field and the keywords being displayed in a keyword-displaying field.

Therefore, it is submitted that claim 9 patentably distinguishes over the prior art.

Claim 10 depends from claim 9 and includes all of the features of that claim plus additional features which are not taught or suggested by the prior art. Therefore, it is submitted that claim 10 patentably distinguishes over the prior art.

Claim 16 is directed to a display method which includes:

extracting keywords contained in a body of each document relevant to each topic obtained by the further classification of each group of cross-referenced documents based on a statistical analysis by referring to the document group information and the topic classification information;

displaying a title of each document relevant to each topic obtained by the further classification together with the keywords extracted from the body of each document corresponding to each title, the title being displayed in a title-displaying field and the keywords being displayed in a keyword-displaying field.

Therefore, it is submitted that claim 16 patentably distinguishes over the prior art.

Claim 17 is directed to a computer readable storage medium which includes the features of:

extracting keywords contained in a body of a document forming part of each group of documents based on a statistical analysis by referring to the document group information;

displaying a title relevant to each group of documents together with

the corresponding keywords extracted from the bodies of the group of documents, the title being displayed in a title-displaying field and the keywords being displayed in a keyword-displaying field.

Therefore, it is submitted that claim 17 patentably distinguishes over the prior art.

New Claim 32

New claim 32 is directed to a relevant document displaying method which includes:

automatically extracting keywords contained in a body of a document forming part of each group of documents based on a statistical analysis by referring to the document group information and without requiring user input; and

displaying a title of each document in each group of documents together with the keywords extracted from the body of the document corresponding to the title, the title being displayed in a title-displaying field and the keywords being displayed in a keyword-displaying field.

Therefore, it is submitted that claim 32 patentably distinguishes over the prior art.

Summary

It is submitted that none of the references, either taken alone or in combination, teach the present claimed invention. Thus, claims 1, 2, 8-10, 16, 17 and 32, are deemed to be in a condition suitable for allowance. Reconsideration of the claims and an early notice of allowance are earnestly solicited.

Respectfully submitted,

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